



Stormwater

Roadside Ditch Stormwater BMPs

This quarter's Stormwater page features efforts being made by King County to address the treatment of stormwater conveyed in roadside ditches. For more information about the contents of this article, contact Jennifer Rilling at jennifer.rilling@kingcounty.gov.

King County Roads Maintenance Section (KCRMS) is responsible for maintaining 1,795 miles of paved roadway across unincorporated King County. Much of this service area is classified as rural to low-density residential land use. As is common in much of Western Washington, most of the roadways rely on roadside ditches to collect and convey stormwater runoff away from the travelled roadway to maintain traffic flow, prevent standing water from forming and prevent flooding. This equates to hundreds or possibly thousands of miles of roadside ditches.



KCRMS currently relies on vegetation as its primary BMP to treat stormwater runoff conveyed in roadside ditches, reduce erosion and maintain the integrity of the ditch structure. There is interest, however, in alternative BMPs to help protect our region's water bodies from potential negative impacts associated with polluted stormwater and/or altered flow regimes. To further address this, KCRMS has been awarded a grant from the Department of Ecology to develop and monitor improved stormwater BMP concepts for roadside ditches. The primary focus of the grant is to develop simple, effective, low cost, low maintenance BMPs that can be easily installed in roadside ditches. These BMP designs should provide water quality treatment and/or to provide flow control in roadside ditch stormwater conveyance systems. The ultimate goal of the grant is to make available an effective BMP option, specifically targeting roadside ditches, which jurisdictions with limited budgets can afford to implement; and to make available a BMP strategy to treat stormwater runoff

within roadside ditches based on drainage or basin needs.

Preliminary work on the Roadside Ditch Stormwater BMP Grant commenced in



2008 and the project is expected to conclude in June 2011. During that time, a total of eight BMP designs will be developed, installed and monitored. Half of the designs will target water quality treatment, and the other half will be designed to address flow control. Results from these studies will be compiled into a report and shared with the stormwater community.

Four roadside ditch locations in unincorporated King County have been selected for BMP monitoring that will occur in 2009. Three temporary flow measurement stations have been established to test monitoring protocol and collect baseline data until permanent monitoring stations are established. Monitoring will be conducted by KCRMS staff. The study results will be used to determine effectiveness of the eight designs.

Recognizing the benefit of conducting research that would be complimentary to the goals of the Roadside Ditch Stormwater BMP Grant, KCRMS obtained additional funding from the Department of Ecology to compile existing knowledge on the subject and make the results available to interested parties. As part of this supplemental grant, KCRMS conducted a literature search on the topic and reached out to individuals recognized locally as being knowledgeable about stormwater. Input was sought on existing data, previous studies, conceptual designs, and lessons learned pertaining to the treatment and/or flow control of stormwater conveyed in roadside ditches. Many great responses were received that relayed valuable past experiences and suggestions. The overwhelming response appeared to emphasize filtration through uniform mixes of compost, sand and gravels and vegetation as effective methods for stormwater treatment and/or flow control. Other useful comments included ideas

(Continued on page 5)

Regional Road Maintenance Training



Currently, there are classes scheduled. Track 3 (February 24 in Friday Harbor); Track 3F (March 17, 18, 19 in Snohomish). See the Regional Road Maintenance ESA training program website for more information: <http://www.engr.washington.edu/epp/esa/index.html>.

As a reminder—Employees can attend Track 2 or 3 and Track 3F and meet the Regional Road Maintenance ESA Program Guidelines and satisfy the Department of Ecology's Certified Erosion and Sediment Control Lead (CESCL training requirement).

New On-Line Water Typing from WDNR

Water Typing is a DNR classification system of streams and other water bodies in terms of whether or not they are used by fish, and whether or not streams experience perennial or seasonal flow. Water types are used by DNR Forest Practices to determine the amount and pattern of riparian buffer protection required during forest practice activities. Water Typing information is also used in the JARPA application form.

Water types are based on either a stream or waterbody's designation as a significant water, or the likelihood that a stream is potentially used by fish based on its size and gradient, and/or on whether or not a stream flows year-round (perennial). If a stream or waterbody is known to be used by fish, or fish are observed within it, it is classified as a fish-bearing water.

The following briefly describes the water type designations.

Type S = Shoreline. This includes streams or waterbodies that are designated "shorelines of the state".

Type F = Fish. Streams or waterbodies known to be fish bearing.

Type NP = Non Fish Perennial. Streams or waterbodies that flow year round but do not meet criteria of a Type F stream.

Type NS = Non-Fish Seasonal. Streams that do not have surface flow during at least some portion of the year and do not meet criteria of a Type F Stream.

Go to:
http://www.dnr.wa.gov/BusinessPermits/Topics/ForestPracticesApplications/Pages/fp_watertyping.aspx
for more information and to view maps that are updated frequently.



Stormwater (continued)

Ditch BMPs (cont.)

(Continued from page 3)

and products for binding target pollutants in stormwater runoff. In addition, there were numerous low impact development (LID) and sediment and erosion control products identified that could be incorporated into a design appropriate for roadside ditches.

The objective is to compile the results of the research conducted by KCRMS into a format that is accessible

to other municipalities faced with challenges similar to King County. Of course, the more input received, the more comprehensive and useful the resulting summary will be. Therefore, KCRMS would like to extend the call for input and ideas for treating stormwater within roadside ditches. If you have a comment, suggestion or idea, please contact Jennifer Rilling at jennifer.rilling@kingcounty.gov.